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ERRATUM.

Page 3, line 2: *Pleocnemia Bakeri*, *v. A. v. R.* — Omit this name, it should be *Pleocnemia Trimeni*, *Bedd.* — I committed the mistake in consequence of Beddome's drawing, which shows a bipinnatifid frond and by Christensen's *Index Filicum*, which referred this plant to Blume's *Aspidium giganteum*. — Lines 2—19 should be modified as follows:

Pleocnemia Trimeni*, *Bedd., *Handb. Ind. Ferns*, 223, fig. N°. 114; *Nephrodium giganteum*, *Bk.*, *Hk. Bk.*, *Syn. Fil.*, 503; *Aspidium giganteum*, *Copel.* (not *Bl.*), *Polypod. Philipp.*, 38; (*Bl.*, *C. Chr.*, *Ind. Fil.*, 75. p. p.).

Judging from Beddome's and Baker's descriptions this plant does not agree with Blume's *Aspidium giganteum*, which has the lower pinnæ pinnatifid and not 2-pinnatifid at the base. A form found in Sumatra by Dr. Burck and determined as *Pleocnemia gigantea*, *Pr.* agrees with Beddome's diagnosis; it has the rhizome erect, densely clothed with rather long, linear-subulate, fuscous scales, the stipes sparingly scaly like the main rachis, the ultimate lobes oblong, blunt to acute, entire to broadly toothed. —

Sumatra; Ceylon, Southern India, ? Philippines.

NEW OR INTERESTING MALAYAN FERNS 2.

BY CAPT. C. R. W. K. VAN ALDERWERELT VAN ROSENBURGH.

Since some few notes were omitted in my previous publication ON NEW OR INTERESTING MALAYAN FERNS *, I let them follow here.

HYMENOPHYLLUM, *Smith.*

Hymenophyllum serrulatum, C. Chr., Ind. Fil., 367; *Didymoglossum serrulatum, Pr.,* Hym., 23, 48; *H. Smithii, Hk.,* Hk. Bk., Syn. Fil., 69, p.p.

A form gathered in Malacca (Johor State), which may be a contracted intermediate form between this and *H. multifidum, Sw.,* has the fronds 5—8 c.m. long, $1\frac{1}{2}$ —2 c.m. broad, the main rachis flexuose, sparingly piloso-paleaceous below, winged in the upper half, the wing entire. Pinnae erecto-patent, pinnatifid; segments linear, simple or forked; lobes 2—5 m.m. long, under 1 m.m. broad, serrate, the serratures rather distant. Indusium elliptical, whether or not exserted.

Malacca.

LYGODIUM, *Swartz.*

Lygodium trifurcatum, Bk., Hk. Bk., Syn. Fil., 437.

A plant gathered in Banca (Leg. Berkhout) has the fertile spikes rather long, in groups of 1—3, and the spores verruculose and crested.—Perhaps intermediate between this and *L. circinatum, Sw.*

Banca.

(*) This Bulletin, 1908, No. XVIII. The article was written and printed in July but published not earlier than in August in consequence of the preparing of the engravings.

OLEANDRA, Cav.

Oleandra cuspidata, Bk., Becc., Malesia, III, 44.

A specimen recently received from New Guinea has the rhizome scales provided with a subulate, strongly deflexed, deciduous apex. The fronds are \pm 25—30 c.m. long, \pm 4—5 c.m. broad, hairy on the veins. Indusium very fugacious. — This might be a form of *O. colubrina*, Copel., var. *membranacea* (Copel., Philipp. Journ. Sci., III^c, 32).

New Guinea.

NEPHROLEPIS, Schott.

Nephrolepis davalliae. v. A. v. R.

Stipites \pm 15 c.m. longi, cum rachide griseo-brunnei et decidue furfuracei, paleis fuscis, crispis, fibrillosis. Frondes \pm 50 c.m. longae, apicem et basin versus angustatae, sed basin versus minus conspicue (pinnis infimis \pm reductis sed haud auriculiformibus). Pinnæ remotæ, numerosæ, glabræ, coriaceæ, patentissimæ, falcatae, petiolulatae; pinnæ maximæ \pm 4 c.m. longæ, basi \pm 5—6 m.m. latæ et rotundato-truncatae, basin versus integræ vel leviter (non profunde) crenatae, apicem versus angustatae, profundius crenatae vel denticulatae vel (in pinnis fertilibus) \pm dentatolobatae, crenis vel dentibus sterilibus obtusiusculis, fertilibus obliquis, truncatis; pinnæ inferiores steriles, superiores fertiles, venis obliquis, 2—3-furcatis. Sori in apicibus crenarum vel dentium solitarii, supra leviter prominentes, apices venularum 2 vel 3 conjungentes vel interdum in apicem venularum solitarii, indusiis, more Davalliae, semiorbicularibus, ad apicem truncatum solum liberis. —

This species recently received from *New Guinea* has the rhizome short, stoloniferous, clothed with bright-brown, subulate scales. Stipes 4—6, approximate. The affinity is with *N. dicksonioides* & *lindsayae*, Christ; sori roundish, uniting the apices of the 2—3 fork branches of the veins, rarely solitary on the vein tips, slightly immersed and prominent on the upper surface; indusia brown, semiorbicular, attached at the rounded base and sides, free at the truncate apex, opening outwardly.

PLEOCNEMIA, *Presl.*

Pleocnemia Bakeri, v. A. v. R.: *Nephrodium giganteum*, Bk., Hk. Bk., Syn. Fil., 503; *Aspidium giganteum*, Copel. (not Bl.), Polypod. Philipp., 38.

Judging from Baker's description this plant does not agree with Blume's plant, which has the lower pinnae pinnatifid and not 2-pinnatifid at the base. A form found in Sumatra by Dr. Burck agrees with Baker's diagnosis, it has the rhizome erect, densely clothed with rather long, linear-subulate, fuscous scales, the stipes tufted, sparingly scaly like the main rachis, the ultimate lobes oblong, acute, entire to broadly toothed, the sori distant from the margin, \pm medial between the costulae and the edge, and two plants gathered in Borneo and cultivated in the Buitenzorg gardens, which may be forms of this species have the fronds under 30 c.m. long, the ultimate lobes linear, narrowed gradually towards the apex, the sori submarginal. — After Christensen's natural system this plant should be called *Aspidium Bakeri* and after Copeland's conception *Tectaria Bakeri*, v. A. v. R.

Sumatra, Borneo, Philippines.

DRYOPTERIS, *Adanson.*

Dryopteris Backeri, v. A. v. R., Bull. Dép. Agr. I. N., 1908, XVIII, 8.

Var. aspera (*Polypodium asperum*, Zipp., MS. in Herb. Bog): Differs from Mr. Backer's Krakatau plant in having the rachises not beset with flat, subulate scales, but with subulate, subterete bristles of the same colour, the pinnulae horizontally spreading, the tertiary segments rather small, with the edges much recurved when dry. Indusium somewhat larger, visible by $\pm 15\times$ magnifying power, but also hidden between the capsules. Rhizome creeping. — Perhaps a distinct species.

Java (Preanger Regencies, Zippelius, No. 268) — I transcribe here the manuscript diagnosis of Zippelius: P. Frondibus triplicato-pinnatis interdum quadruplicato-pinnatis, apice simpliciter pinnatis confluentisque, pinnulis alternis sessilibus remotis horizontalibus lineari-lanceolatis semipinnatifidis basi utrinque auri-

culatis pubescentibus, laciniis ovato-oblongis obtusis, fertilibus minoribus subcrenatis margine inflexis, rachi primaria stipiteque leviter carinatis leproso-asperulis, rachibus secundariis tomentosis, caudice repente nudo.

Dryopteris (Nephrodium) **piloso-squamata. v. A. v. R.**

Rhizoma breve, paleaceum; paleæ lineari-lanceolatae, fuscae, acuminatae, pilis vestitæ. Stipites approximati, \pm 55 c.m. longi, crassi, erecti, firmi, virides, cum rachide inconspicue et breviter pilosi, basin versus paleacei. Frondes ovato-lanceolatae, \pm 50 c.m. longæ, \pm 30 c.m. latæ. Pinnæ coriaceæ, glabræ, sessiles, lineari-lanceolatae, 2—2 $\frac{1}{2}$ c.m. latæ, acuminatae, usque ad mediam partem inter marginem et costam lobatae, basi truncatae vel subtruncatae, lobis oblongis, rotundatis vel subtruncatis, subintegris, \pm 2 $\frac{1}{2}$ m.m. latis, costis costisque minute pilosis, venis 8—10 utrinque, inferioribus 3—5 anastomosantibus; pinnæ inferiores non reductæ deflexae, pinnæ inferiores reductæ 4—5 utrinque, remotæ, auriculiformes, stipitis dimidiam partem superiorem occupantes. Sori numerosi, mediales, demum confluentes, indusiis reniformibus, brevi-pilosis et glandulosis, glandulis flavidis.

New Guinea.— The description is taken from a specimen cultivated in the Buitenzorg gardens. In habit this plant resembles *Mesochlæna polycarpa*, *Bedd.*, but the fronds are smaller, the pinnæ less deeply incised, the veins more copiously anastomosing, the texture firmer, the sori round, not elongate, the reduced pinnæ less numerous, occupying the upper half of the stipes only.

ODONTOSORIA, Fée.

Odontosoria lindsayae, v. A. v. R.

Stipites cum rachidibus pallide brunneo-straminei, glabri. Frondes 4—5-pinnatae, glabrae, subcoriaceae vel firmiter herbaceae. Segmenta ultima (quaternaria quinariae) sessilia, cuneata, simplicia vel \pm irregulariter 2—3-fida, apicibus latis, horizontaliter vel oblique truncatis. Sori in segmentis vel lobis ultimis terminales, apices venarum 2 vel plurium conjungentes.

Recently received from New Guinea. In habit this closely resembles *O. chinensis*, *J. Sm.*, but in the Lindsaya-like sori it

approximates *O. retusa*, *J. Sm.* The ultimate leaflets are $\frac{3}{4}$ — $1\frac{1}{4}$ c.m. long, 2—5 m.m. broad, broadest at the apex, with the sori oblong or linear, narrow, occupying the whole breadth of the ultimate segments (lobes or leaflets).

New Guinea.

PTERIS. Linné.

Pteris Grevilleana. Wall. List, No. 2680; Clarke, in Trans. Linn. Soc., Bot., 2nd Series, I, 466, tab. LIV;—var. *ornata*, Hort. Bog.

Judging from the descriptions this plant seems to be dimorphous i.e. with the barren fronds 3-foliate (with the lateral segments forked) and the fertile fronds 5-foliate (with the lowest segments forked). This is not quite correct, for specimens gathered in Borneo by Dr. Nieuwenhuis, determined by Dr. Christ, have the barren fronds 5-foliate and the fertile ones 3-foliate, and the variety of this species cultivated in the Buitenzorg gardens has both barren and fertile fronds as well 3- as 5-foliate.

Var. *ornata*: Fronds provided with broad, whitish or pale-grey-green bands running down the centre of the pinnae.—*Borneo.*

Pteris longipinnula, Wall. List, No. 108; Hk. Bk., Syn. Fil., 158;—var. *sumatrana*.

Var *sumatrana*: Distinguished from the type in having the pinnae irregularly pinnatifid, the lobes different in length, varying from $\frac{1}{2}$ —5 c.m. deep, with the edges crenato-serrate.—*Sumatra* (Hagen).

ATHYRIUM, Roth.

Athyrium pusillum, v. A. v. R.; *Asplenium pusillum*, Bl., Enum., (1828), 183; *Aspl. confluens*, Kze, Bot. Zeit., 1848, 174.

From an examination of Zollinger's No. 2925, this plant is undoubtedly *no* *Asplenium*. Baker already referred it to *Diplazium* (Hk. Bk., Syn. Fil., 490). The scales are finely cancellate, i.e.

the side walls of the cells are thin and the lumina dark-coloured (*). Indusium elongate-oblong, hamato-recurvate with 2 \pm equal branches but without sinus.— Plants gathered by Mr. Forbes, and determined by Dr. Raciborski as *Aspl. pusillum*, *Bl.* are young forms of *Diplazium grammitoides*, *Pr.* See tab. I.

Java.

PHYLLITIS. *Ludwig.*

Phyllitis (*Scolopendrium*) **intermedia. v. A. v. R.**

Rhizoma longum, repens, hic illic parce paleaceum, paleis minutis, punctiformibus, atrobrunneis. Frondes chartaceae, stipitatae, glabrae, vel ad stipitem et costam parce punctiformi-paleaceae, lineari—lanceolatae, apicem et basin versus sensim angustatae, margine irregulariter et late sed non profunde undulato-crenatae, apice subcaudatae, distincte crenatae, venis liberis, subpatentibus vel erecto-patentibus, simplicibus vel furcatis. Sori numerosi, lati, geminati, interstitio lato, membranaceo, translucido separati.

New Guinea (Treub)—A specimen recently gathered in said island by Dr. Versteegh quite agrees with this. It seems to be intermediate between *Phyllitis scolopendropsis* (*Asplenium Scolopendropsis*, *Muell.*, Pap. Pl., III, 49) and *Phyllitis mambare* (*Scolopendrium mambare*, *Bail.*, Queensl. Agric. Journ., III², 162). The rhizome and stipes are angular, pale-olivaceous like the fronds, with the stipes 5–10 c.m. long, the fronds \pm 25–35 c.m. long and $1\frac{1}{2}$ –2 c.m. broad. The sori reach from the midrib to some distance from the edge, with the interstice between each 2 sori of the same pair broad, empty, thinly membranaceous, translucent and paler in colour than the rest of the frond, and the indusia not reaching each other. The philippine *Phyllitis schizocarpa* (*Scolopendrium schizocarpum*, *Copel.*, Philipp. Journ. Sci., I, Suppl., 152, tab. IX) is readily distinguished from the 3 new-guinean forms by the short rhizome, the black stipes and the broader fronds.

(*) For the anatomical characters of the *Asplenieae* see J. Milde, *Ueber Athyrium, Asplenium und Verwandte*, in Bot. Zeit., 1870, 329 & 345.

VITTARIA. *J. Smith.*

Vittaria sulcata. Kuhn. Linn., XXXVI, 68; *Pleurogramme sulcata*, Mett., MS. See tab. II, fig. 3.

Specimens gathered in Banca by Mr. Teysmann are distinguished from the typical form (Bedd., Handb. Ind. Ferns, fig. 240) in having the outer valve of the grooves narrowed at the base or at the centre, and much dilated and very obliquely truncate at the edge. — The plants were erroneously determined as *V. pusilla*, *Bl.*
Banca.

Vittaria pusilla. Bl. Enum. 199. See tab. II. fig. 2.

Specimens gathered in Borneo by Dr. Hallier differ from the form drawn by Mettenius (Ann. Mus. Bot. L. B., IV, tab. VII, fig. 12) in having the outer valve of the soriferous grooves broadest at the base, and narrowed gradually towards a subacute (thin) edge. — The plants were erroneously determined as *V. debilis*, *Kuhn.*

Borneo.

PHEGOPTERIS. *Fée.*

Phegopteris Hosei. v. A. v. R.; *Meniscium Hosei*, Bk., Journ. of Linn. Soc., Bot., XXII, 230; *Dryopteris Hosei*, C. Chr., Ind. Fil., 271.

Var. sumbensis: Pinnae more numerous, 12—16-jugate, rather falcate, serrato-crenate. Fertile fronds narrow, $\pm 2\frac{1}{2}$ —3 c.m. broad, with the pinnae rather contracted, 2—3 m.m. broad, strongly falcate, the edges entire, \pm recurved when dry. Sori in 1 row on each side of the costae.—Rhizome not seen. Barren fronds sometimes provided with soriferous, but not contracted pinnae. — *Sumba* (*Karita*, Teysmann, No. 10693).

CYCLOPHORUS. *Desv.*

Cyclophorus rasamalae, C. Chr., Ind. Fil., 200; *Polypodium Rasamalae*, Rac., Flor. Btz., I, 99.

Forma minor: Characters of the type, but the fronds very short, $2\frac{1}{2}$ —5 c.m. long, short-stalked, the stipes at best 1 c.m. long.—*Java* (*Preanger Regencies*, J. J. Smith).

Cyclophorus nummularifolius. C. Chr., Ind. Fil., 200; *Acrostichum nummularifolium*, Sw., Syn. 191, 419, tab. II, fig. 1; Bl., Flor. Jav., Fil., tab. XI, fig. 1—2; *Polypodium nummulariaefolium*, Mett., Farng., I, Polypod., 123; Rac., Flor. Btz., I, 101.

Var rufus: Rhizome scales copiously ciliate, bright-red-brown; fronds densely coated beneath with bright-red-brown tomentum.—*Batu Islands* (Raap, No. 742).

DRYNARIA. J. Smith.

Drynaria involuta, v. A. v. B.

Rhizoma longum, adscendens vel scandens, lignosum, flexuosum, paleaceum, paleis basi late ovatis, appressis, obscure fuscis, margine scariosis, pallidis, suberosis, apice longe lineari-subulatis, gracilibus, recurvatis, deciduis. Frondes remotæ; frondes steriles (cup-leaves) fere more *D. cornucopiæ* sed longitudinaliter induplicatæ vel involutæ, marginibus (apice et basi exceptis) sese imbricatis, margine exteriori subundulata, apice rotundatæ, basi cordatæ, rhizomatis partem radicantem \pm totam includentes, haud ad ramulos breves, horizontales rhizomatis positæ, scarioso-coriaceæ, extus subopacæ, intus nitidæ, 6—10 c.m. longæ; frondes fertiles *D. quercifoliæ* similes, sed non rarius multo minores, soris inter costulas lorum (main veins) 2-serialibus, in quaque serie normaliter 4—7. — Tab. IV.

Borneo (Teysmann, Nos. 8577, 8590; Teuscher). — Differs from *Drynaria cornucopia* (*Thayeria cornucopia*, Copel., Philipp. Journ. Sci., I, Suppl., 165, tab. XXVIII) in having the cup-leaves much smaller, not solitary on short lateral branches of the rhizome, not cornet-shaped, but quite enclosing distant portions of the rhizome itself, and agreeing with said species in having the cup-leaves involute with imbricated side edges so as to form a perfect, humus-collecting organ, with the rhizome rooting into the humus.

ACROSTICHUM. *Linné.*

Acrostichum aureum, L., Spec., II, 1069; *Chrysodium aureum*, Mett., Fil. Lips., 21; Christ, Farnkr. d. Erde, 47.

Var. attenuatum: Fertile pinnae contracted, narrow-linear. Both barren and fertile segments resembling those of *Leptochilus Raapii*, v. *A. v. R.* (this Bulletin, 1908, XVIII, 27, tab. VIII) but longer, and narrowed gradually towards both ends.— *Karimon Djawa Islands* (Koorders).

OPHIOGLOSSUM, *Linné.*

Ophioglossum inconspicuum, v. A. v. R.; *O. moluccanum*, Schl., *forma inconspicua*, Rac., in Tijdschr. Ned. Ind., LIX, 237, tab. II, fig. 5.

Rhizome \pm cylindrical. Fronds 1—2, sometimes more, 7—10 c.m. high, the barren segment sessile, elongate-lanceolate, $\pm 1\frac{1}{2}$ —3 c.m. long, 2—3 $\frac{1}{2}$ m.m. broad, acute at both ends, placed mostly below the middle. Texture \pm fleshy, often thin when dry; areolae longitudinally elongated. Fertile spike ± 1 —2 c.m. long, the peduncle $\pm 1\frac{1}{2}$ —2 \times as long as the barren segment.— *Java, New Guinea* (Versteegh No. 1464).

Var. majus: Like the type but all the dimensions $\pm 2 \times$ as large, and the fronds more numerous, even to 12—15, tufted.— *New Guinea* (Versteegh No. 1942).

Tab. I.

Fig. 1. **Athyrium pusillum, v. A. v. R.**, taken from Zollinger's No. 2925.

- a.* The frond, 1 ×.
- b.* Lowest pinna, 8 ×.
- c.* Rhizome scale, 20 ×.

Fig. 2. **Diplazium grammitoides, Pr.**; young form, taken from Mr. Forbe's plant, (No. 2894).

- a.* The frond, 1 ×.
- b.* One of the higher pinnæ, 4 ×.
- c.* Transversal section of the stipe, 30 ×.



Tab. II.

Fig. 1. **Vittaria Bensei, v. A. v. R.** *)

- a.* Rhizome with fronds, 1 ×.
- b.* Transversal section of a fertile segment, 15 ×.
- c.* Rhizome scale, 10 ×.
- d.* Capsule with paraphyses, 25 ×.
- e.* Paraphyse, 100 ×.

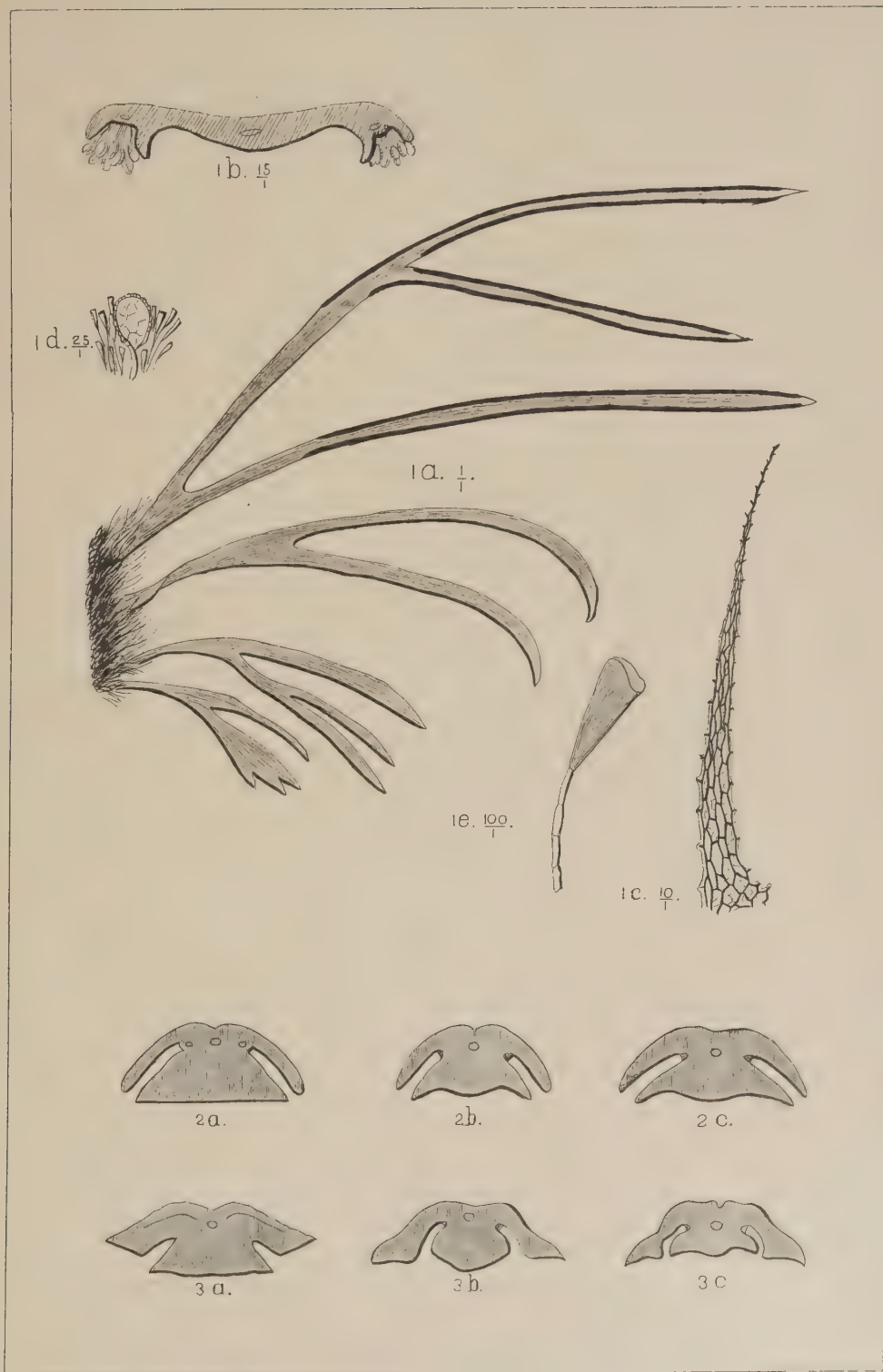
Fig. 2. **Vittaria pusilla, Bl.;** transversal section of fertile fronds.

- a.* After Mettenius.
- b.* After a specimen gathered in Java by Mr. J. J. Smith.
- c.* After a specimen gathered in Borneo by Dr. Hallier.

Fig. 3. **Vittaria sulcata, Kuhn;** transversal section of fertile fronds.

- a.* After Beddome.
- b-c.* After specimens gathered in Banca by Mr. Teysmann.

*) See this Bulletin, 1908, No. XVIII, page 19.



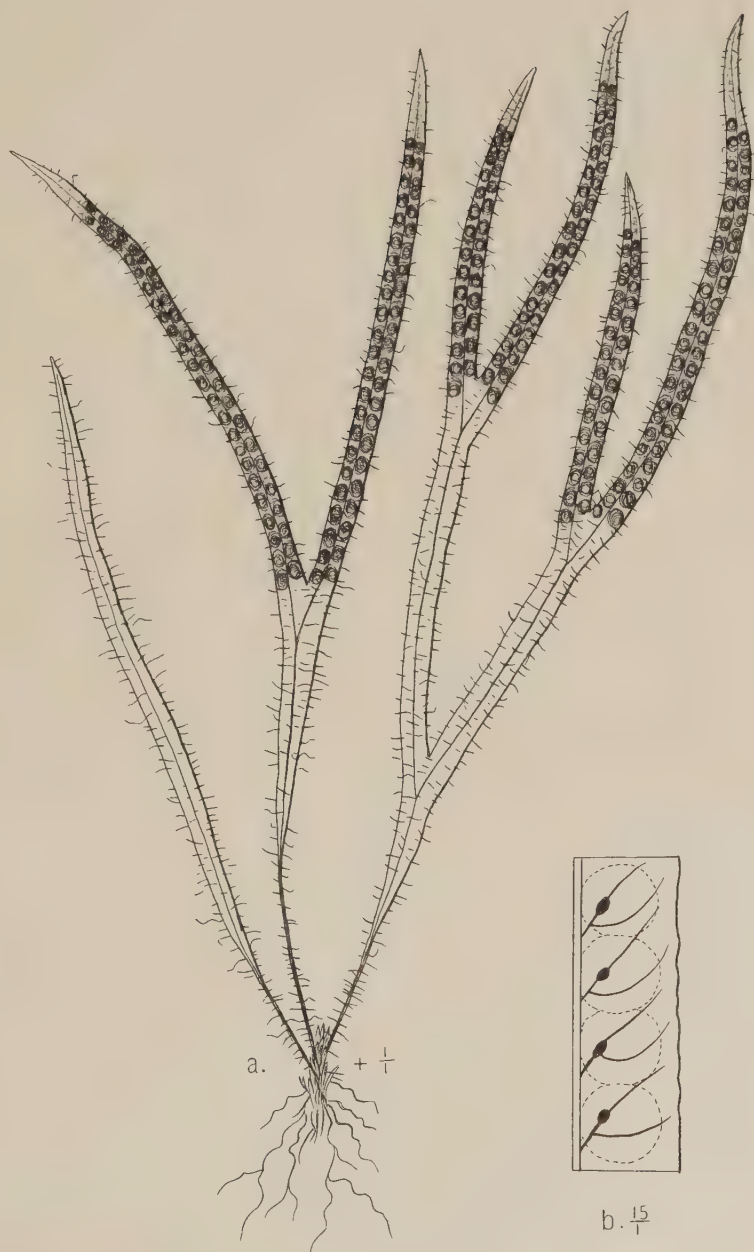
Tab. III.

Polypodium subdichotomum, *Rac.*, taken from
Mr. Forbes' original plants *).

a. Rhizome with fronds, $1\frac{1}{2}$ ×.

b. Portion of fertile segment, destitute of hairs and sori, 15 ×.

*) See this Bulletin, 1908, No. XVIII, page 20.



Tab. IV.

Drynaria involuta, v. A. v. R.; taken from a specimen gathered by Mr. Teysmann.

- a.* Rhizome with fronds, $\pm 1/2 \times$.
- b.* Portion of fertile frond, 1 \times .
- c.* Rhizome scale, 10 \times .

TAB. IV.



